

企业概况

ENTERPRISE

Introduction

洛阳翔硕轴承有限公司，坐落于中国轴承工业基地——洛阳，自创立起即以市场为导向，真诚服务为宗旨，依靠强有力的技术研发团队，数年来已经为数百家客户开发制造出百分百满足需求的产品。公司秉承“真诚、信誉、创新”的经营理念，始终坚持以优良的品质与诚信的准则服务于国内外市场。

翔硕轴承（SA）主要生产精密交叉滚子轴承、精密薄壁球轴承、角接触球轴承、圆柱滚子轴承、推力滚子轴承、精密转盘转台轴承以及各种满装圆柱滚子轴承、单向轴承和不锈钢轴承等，最高精度可达P4、P2级，同时可根据客户要求研制各种特殊、高精度、非标准轴承。

翔硕轴承(SA)产品经过多年以来服务于国内外客户积累的丰富经验，技术领先、工艺精湛、品质可靠。已经为众多国内、外客户配套，广泛应用于工业机器人、数控机床、医疗器械、精密测量仪器、雷达通讯、电力设备、印染设备、汽车制造业、橡塑化工等领域。翔硕轴承严格按照ISO9001质量体系进行全面的产品质量控制，利用先进的管理手段对从产品设计到产品制造过程的各个流程精确控制，保证产品质量的稳定性和客户要求充分的满足。

Luoyang Senao bearing co., LTD., located in luoyang bearing industrial base, since the creation of the market-oriented, sincere service for the purpose, relying on strong technical research and development team, there are hundreds of customer development over the years to create absolutely meet the requirements of product. Companies adhering to the "honesty, credibility, innovation" business philosophy, always insist on excellent quality and sincere service to domestic and foreign markets.

The Senao bearing(SA) mainly produces precision cross roller bearing, thin ball bearings, angular contact ball bearings, cylindrical roller bearings, thrust roller bearings, precision turntable turntable bearings and all kinds of full cylindrical roller bearings, one-way bearing and stainless steel bearings, etc., the highest accuracy of P4, P2, at the same time can be determined according to the customer to develop all kinds of special, high precision, non-standard bearings.

Since the Senao bearing(SA) products after years of rich experience accumulated in the service of the domestic and foreign customers, leading technology, exquisite workmanship, reliable quality. Already support services for many domestic and foreign customers, are widely used in industrial robots, precision CNC machine tools, medical equipment, precision measuring instruments, radar, communication, electric power equipment, printing and dyeing equipment, automobile manufacturing, rubber and plastic chemical industry, etc. Senao bearing in strict accordance with the ISO9001 quality system to conduct a comprehensive quality control, the use of advanced management means to every process from product design to product manufacturing process of precise control, ensure product quality stability and fully meet customer requirements.



精密交叉圆柱滚子轴承

PRECISION CROSS-ROLLER BEARING

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精密交叉圆柱滚子轴承

PRECISION CROSS-ROLLER BEARING

■SA精密交叉滚子轴承的主要特点

SA Precision Cross-roller Bearing Structure and Features

1、高刚性、旋转灵活且高的定位精度

High rigidity Flexible rotation Accurate location

交叉滚子轴承内部滚动体采用圆柱滚子呈90° 相互垂直交叉排列，滚动体与滚道线性接触，轴承受力时套圈与滚动体弹性变形小，故轴承工作时运转刚性高；滚子之间可装有保持器或者隔离块，防止滚子的倾斜或滚子之间相互摩擦，提高旋转灵活性和工作转速。

With the cross-roller bearing, cylindrical rollers are arranged with each roller perpendicular to the adjacent roller, in a 90° V groove, rollers and groove are linear contact, rings and rollers have small elastic deformation when the bearing achieve loads, thus, it have high rigidity. Separated from each other by a spacer or retainer to prevent rollers from skewing and the friction between rollers, improving flexible rotation and working speed.

2、操作安装简化

Simple operation and Install

轴承两半外圈型、两半内圈型或整体结构带装滚子孔结构，在装入滚子后被固定在一起，安装时操作非常简单。

With the types of two-piece outer rings、inner rings type、integrated structure with roller putting holes type, which is very easy operation and install.

3、可承受较大的轴向和径向负荷同时可以承载倾覆力

Achieve loads in axial, radial and tilting moment

滚子在呈90° 的V型滚道滚动面上通过间隔保持器被相互垂直排列，这种设计使交叉滚子轴承就可以承受较大的径向负荷、轴向负荷及倾覆力等所有方向的负荷。

With the structure of 90° V groove, cylindrical rollers are arranged with each roller perpendicular to the adjacent roller, this design allows just one bearing to receive loads in all direction including radial, axial and moment loads.

4、节省安装空间



Save installation space




交叉滚子轴承的内外圈尺寸被最小限度的小型化，特别是超薄结构是接近极限的外形尺寸，并且具有高刚性，适合于工业机器人的关节部位或者旋转部位、机械加工中心的旋转工作台、机械手旋转部位、精密旋转工作台、医疗仪器、计量器具、IC制造装置等广泛用途。


Since the Cross-roller Ring achieves high rigidity despite the minimum possible dimensions of the inner and outer rings, it is optimal for applications such as joints and swiveling units of industrial robots, swiveling tables of machining centers, rotary units of manipulators, precision rotary tables, medical equipment, measuring instruments and IC manufacture machines.

■SA精密交叉滚子轴承的结构型式

Types of SA precision cross-roller bearing

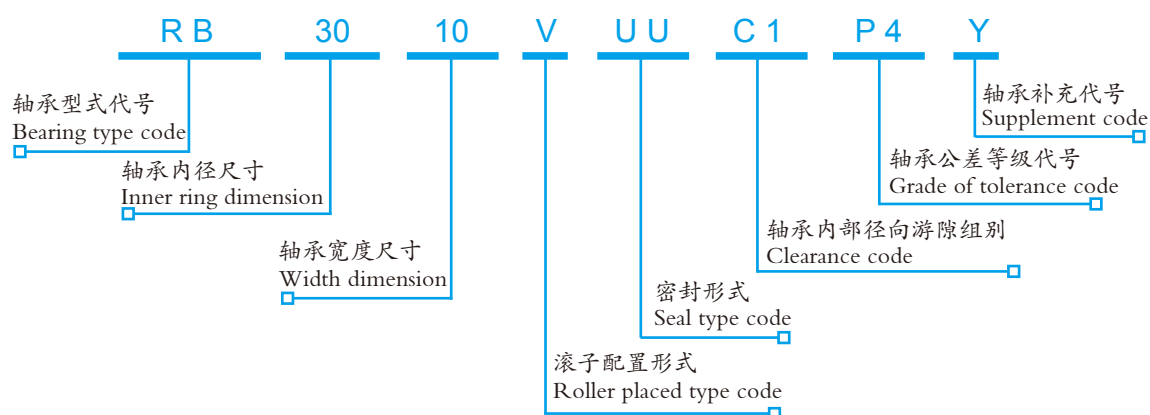
RB型（外圈两半，内圈整体型） Model RB (Separable Outer Ring Type for Inner Ring Rotation)	
	RB系列（THK对应为RB系列，IKO对应为CRB系列，NSK 对应为NRXT系列）为交叉圆柱滚子轴承的基本型，内、外圈尺寸被最小限度地小型化，其结构为外圈是两半型，并通过螺栓或特殊铆钉进行固定，内圈是一体设计，适合于要求内圈旋转精度高的部位，例如机床分度工作台的旋转部位。
RB series(THK corresponding to RB series,IKO corresponding to CRB series),NSK corresponding to NRXT series). Cross-roller bearing basic type, the dimension of inner ring and outerring are minimum limited. with a separable outer ring which fixed together by bolt or special rivet, The inner ring is integrated. It is used in locations where the rotational accuracy of the inner ring is required. For example, the swivel portions of index tables of machine tools.	
SX型（外圈两半，内圈整体型） Model SX (Separable Outer Ring Type for Inner Ring Rotation)	
	SX系列型号（INA对应为SX系列），为交叉圆柱滚子轴承的基本型，内、外圈尺寸被最小限度地小型化，其结构为外圈是两半型，并通过径向联接圈将两外圈进行固定，内圈是一体设计，适合于要求内圈旋转精度高的部位，例如机床分度工作台的旋转部位。
SX series(INA corresponding to SX series), Cross-roller bearing basic type, the dimension of inner ring and outerring are minimum limited. with a separable outer ring which fixed together by a radial joint ring, The inner ring is integrated. It is used in locations where the rotational accuracy of the inner ring is required. For example, the swivel portions of index tables of machine tools.	
CSF型（外圈两半，内圈整体，内外圈带安装孔型） Model CSF (Separable outer ring type for outer ring rotation with mounting holes)	
	CSF系列型号交叉圆柱滚子轴承，其构造是外圈是分割型，内圈是一体设计，适合于要求内圈旋转精度高的部位。由于内外圈已进行了安装孔的加工，就不需要固定法兰和支撑座。更加有利于安装。主要应用于机器人谐波减速机。
CSF series cross-roller bearing with a sparate outer ring, and an inner ring integrated with the main body. It is used in locations where the rotational accuracy of the inner ring is required. Since holes are drilled for mounting, the need for a presser flange and a housing is eliminated, more easier to install. It is used, For example, Output end of the robot harmonic reducer.	

RE型（内圈两半，外圈整体型） Model RE(Two-piece Inner Ring Type for Outer Ring Rotation)	
	RE系列型号（THK对应系列为RE系列）是由RB型的设计理念产生的新型式，主要尺寸与RB型相同。其构造是内圈是两半型，外圈是一体设计，适合于要求外圈旋转精度高的部位。
RE series(THK corresponding to RE series), It is the new structure from RB design.Main dimensions are the same as model RB. With two-piece inner ring, and a outer ring integrated. It is used in locations where the rotational accuracy of the outer ring is required.	
XV型（内圈两半，外圈整体型并具安装孔型） Model XV(Two-piece Inner Ring Type for Outer Ring Rotation with mounting holes)	
	XV系列型号（INA对应为XV系列），其外圈是一体设计，并具有安装孔，内圈是两半型结构，并在内圈和外圈具有金属防尘固定圈，既有防尘又可以保证外圈与内圈结合成为一体。安装方便，适合于要求外圈旋转精度高的部位。
XV series(INA corresponding to XV series), Integrated outer ring with mounting holes, Two-piece inner ring, Metal anti-rust fixed ring on both inner and outer rings.This design not only prevent dust but also ensure the outer ring and inner ring integrated. Easy handle, It is used in locations where the rotational accuracy of the outer ring is required.	
CRBH型（内、外圈整体高刚性型） Model CRBH (High rigidity type,Both inner ring and outer ring are integrated)	
	CRBH系列（IKO对应系列为CRBH系列）型号轴承内圈和外圈都为一体化设计，整体套圈滚道，外圈具有装滚子孔型结构。高刚性和高的旋转精度，同时由于高质量的滚道和隔离块的配置保证了轴承的回转灵活性。
CRBH series(IKO corresponding to CRBH series), With the structure of both inner ring and outer ring are integrated, integrated raceway, with putting roller hole on outer ring. High rigidity and accuracy rotation.Since the high quality raceway and spacer placed to ensure the flexible rotation.	

CRBS型（内、外圈整体超薄壁型） Model CRBS(Ultra-thin wall type, Integrated inner/outer ring)	
	CRBS系列 (THK对应为RA系列， IKO对应为CRBS系列) 轴承内圈和外圈都为一体化设计，整体套圈滚道，外圈具有装滚子孔型结构。套圈厚度薄至极限，有效减轻机构重量。容易安装且极薄的型式，所以最适合于要求内外圈高刚性，高精度的场合。
CRBS series(THK corresponding to RA series, IKO corresponding to CRBS series), With the structure of both inner ring and outer ring are integrated, integrated raceway, with putting roller hole on outer ring.Thinnest possible inner and outer rings, Effective to deduct structure weight, An easy install and ultra-thin wall type. It is used in locations where high rigidity and high precision of both inner and outer ring are required	
CRBC型（外圈两半，内圈整体超薄壁型） Model CRBC (Ultra-thin wall type,Separable outer ring, integrated inner ring)	
	CRBC系列型号 (THK对应为RA-C系列)， 其外圈是两半，内圈是一体型设计，套圈厚度薄至极限，有效减轻机构重量。轴承座或侧面压紧法兰都可以轻量化，最合适机器人手部旋转关节部分。
CRBC series(THK corresponding to RA-C series), With the structure of separable outer ring and integrated inner ring, thinnest possible inner and outer rings. Effective to deduct structure weight. Both bearing housing and presser flange can be light weight.It is optimal for application such as the joints and swivel portions of robots	
RU型（内、外圈整体高刚性并具安装孔型） Model RU(Integrated Inner/Outer Ring Type, with high rigidity and mounting holes)	
	RU系列，(THK对应为RU系列， 内外圈一体型设计，由于内外圈已进行了安装孔的加工，就不需要固定法兰和支撑座。另外，由于采用带座的一体化内外圈环结构，安装对性能几乎没有影响，因此能够获得稳定的旋转精度和扭矩。外圈和内圈旋转机构都可适用。
RU series(THK corresponding to RU series, Integrated Inner/Outer ring design).Since holes are drilled for mounting, the need for a presser flange and a housing is eliminated. Also, owing to the integrated Inner/outer ring type structure with washer, there is almost no effect from installation on performance, allowing stable rotational accuracy and torque to be obtained.Can be used for both outer and inner ring rotaion.	

■SA精密交叉滚子轴承代号方法： SA precision cross-roller bearing code

※ 标准轴承形式的代号方法 Standard bearing code



标准型产品代号表示含义如下： Signification of standard bearing code

1. 轴承型式代号，RB, RE, CRBH, CRBS, CRBC分别参照前面轴承结构形式说明。
Bearing type code, RB,RE, CRBH,CRBS,CRBC Please reference bearing types in front table.
2. 轴承内径实际尺寸，由一位、两位或三位阿拉伯数字表示。
Inner ring dimension, showed by single/two/triple digital.
3. 轴承宽度实际尺寸，一般由两位阿拉伯数字表示。
Width dimension,showed by two digital.
4. 滚子配置形式代号
Roller placed type code
标准配置为隔离块型，滚子与隔离块间隔排列，代号不用标示。
Standard type with the structure of roller and spacer spaced arrange.No code.
满装配置为滚子与滚子交叉排列，代号为英文字母 V。
Full complement type with the structure of roller and roller crossed placed, Code is V.
特殊型式，包括带保持架型等结构，代号为英文字母 C
Special type, including the structure with cage, code is C
5. 密封形式代号
Seal type code
标准双侧橡胶密封型式，代号为英文字母 UU
Standard double rubber seal, code is UU

变型单侧橡胶密封型式，代号为英文字母 U

Deformation single rubber seal, code is U

双侧金属防尘圈型式，代号为英文字母 LL

Anti-rust metal double seal, code is LL

单侧金属防尘圈型式，代号为英文字母 L

Anti-rust metal single seal, code is L

其他型式密封，代号为英文字母 R

Other seal type, code is R

6. 轴承内部游隙代号

Clearance code

根据轴承内部游隙大小，进行标识，具体由一位或两位英文字母和一位阿拉伯数字标识，参照交叉滚子轴承游隙表。

Clearance code showed by single /two English letter and a single digital, Please refer to the table of cross-roller bearing clearance value.

7. 轴承公差等级代号

Grade of tolerance code

根据轴承的尺寸公差和精度进行标识，主要分为P2，P4，P5，P6及P0等精度等级，对于标准级精度代号中可以不进行标识。

According to bearing dimension tolerance and precision, code mainly are P2，P4，P5，P6 and P0, The standard precision not show the code.

8. 轴承补充代号

Supplement code

对于轴承有除以上要求以外的特殊结构变形等技术要求变化，则用轴承补充代号进行标识，补充代号为英文字母和一位阿拉伯数字组合而成。

Y1,Y2,Y3...等。

For the additional malformation besides above mentioned, use supplement code, showed by an English letter and a single digital. Y1,Y2,Y3...etc.

示例：RB 30 10 V UU C1 P4 ---

For example RB 30 10 V UU C1 P4 ---

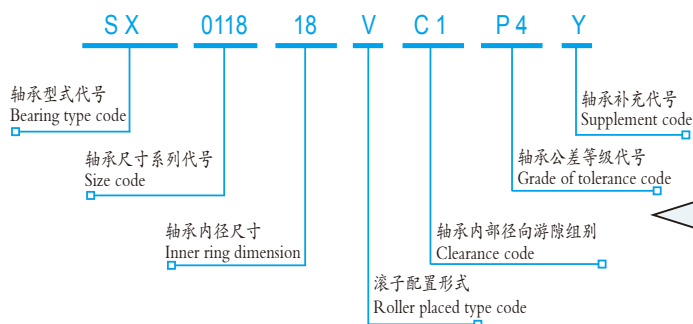
表示轴承形式为RB型，内径尺寸30mm,轴承宽度10mm,滚子满装型配置，两侧带橡胶密封，C1组径向游隙，P4级尺寸精度。

Means the bearing is RB type, inner ring dimension is 30mm, bearing width 10mm, full complement roller placed, double rubber seal, C1 clearance, P4 dimensional precision.

※特殊轴承形式的代号

Special bearing type code

1. SX型 (Model SX)

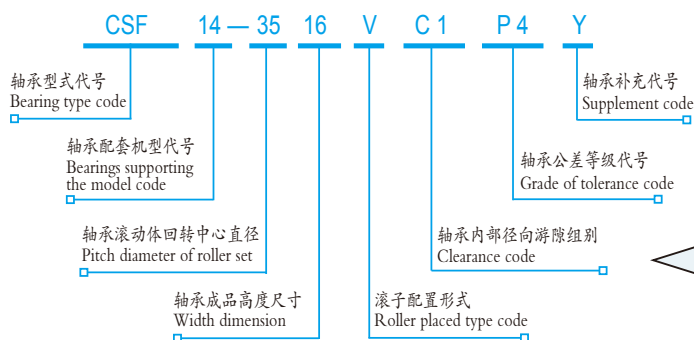


SX型代号补充说明

SX code supplementary instruction

轴承内径尺寸代号，一般由两位阿拉伯数字表示，实际内径尺寸为代号数值 $\times 5$ 。
Inner ring code normally showed by two digital, inner dimension code is $\times 5$.

2. CSF型 (Model CSF)

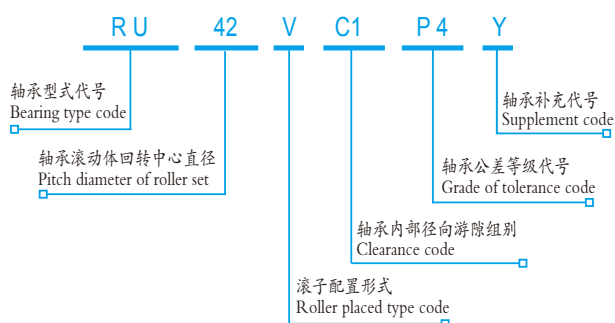


CSF型代号补充说明

CSF code supplementary instruction

标准精度等级为P5级，标准游隙组别为CC₀组，可不标识，标准密封型式为单侧骨架式密封，如有不同于标准的要求，则在补充代号前进行标识。
Standard precision is P5, Standard clearance is CC₀, which not need a code, Standard seal type is single rubber seal with spring rim, If there are different from standard, supplementary code will be needed.

3. RU型 (Model RU)

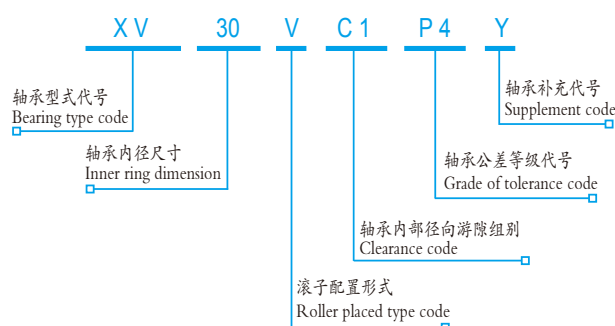


RU型代号补充说明

RU code supplementary instruction

标准精度等级为P5级，标准游隙组别为C0组，可不标识，标准密封型式参照数据表，如有不同于标准的要求，则在补充代号前进行标识。
Standard precision is P5, Standard clearance is C0, which not need a code, Standard seal type refer to table, If there are different from standard, supplementary code will be needed.

4. XV型 (Model XV)



XV型代号补充说明

XV code supplementary instruction

标准精度等级参照精度表，标准游隙组别为C0组，可不标识，标准密封型式两侧带金属防尘圈，如有不同于标准的要求，则在补充代号前进行标识。
Standard precision refer to table, Standard clearance is C0, which not need a code, Standard seal type with anti-rust metal ring on both sides, If there are different from standard, supplementary code will be needed.

■SA精密交叉滚子轴承精度等级

SA precision cross-roller bearing accuracy grade

※ SA精密交叉滚子轴承的旋转精度要求参见以下表列数据:

SA precision cross-roller bearing running accuracy refer to below table:

RB/CRBH型内圈的旋转精度Running accuracy of the inner ring

单位Unit: μm

轴承内径(d)的公称尺寸(mm) Bearing inner diameter		径向跳动 Radial runout tolerance					轴向跳动 Axial runout tolerance				
		0级	P6级	P5级	P4级	P2级	0级	P6级	P5级	P4级	P2级
超过	以下										
18	30	13	8	4	3	2.5	13	8	4	3	2.5
30	50	15	10	5	4	2.5	15	10	5	4	2.5
50	80	20	10	5	4	2.5	20	10	5	4	2.5
80	120	25	13	6	5	2.5	25	13	6	5	2.5
120	150	30	18	8	6	2.5	30	18	8	6	2.5
150	180	30	18	8	6	5	30	18	8	6	5
180	250	40	20	10	8	5	40	20	10	8	5
250	315	50	25	13	10	—	50	25	13	10	—
315	400	60	30	15	12	—	60	30	15	12	—
400	500	65	35	18	14	—	65	35	18	14	—
500	630	70	40	20	16	—	70	40	20	16	—
630	800	80	—	—	—	—	80	—	—	—	—
800	1000	90	—	—	—	—	90	—	—	—	—
1000	1250	100	—	—	—	—	100	—	—	—	—

RE/CRBH型外圈的旋转精度Running accuracy of the outer ring

单位Unit: μm

轴承外径(D)的公称尺寸(mm) bearing outer diameter		径向跳动Radial runout tolerance					轴向跳动axial runout tolerance				
		0级	P6级	P5级	P4级	P2级	0级	P6级	P5级	P4级	P2级
超过	以下										
30	50	20	10	7	5	2.5	20	10	7	5	2.5
50	80	25	13	8	5	4	25	13	8	5	4
80	120	35	18	10	6	5	35	18	10	6	5
120	150	40	20	11	7	5	40	20	11	7	5
150	180	45	23	13	8	5	45	23	13	8	5
180	250	50	25	15	10	7	50	25	15	10	7
250	315	60	30	18	11	7	60	30	18	11	7
315	400	70	35	20	13	8	70	35	20	13	8
400	500	80	40	23	15	—	80	40	23	15	—
500	630	100	50	25	16	—	100	50	25	16	—
630	800	120	60	30	20	—	120	60	30	20	—
800	1000	120	75	—	—	—	120	75	—	—	—
1000	1250	120	—	—	—	—	120	—	—	—	—
1250	1600	120	—	—	—	—	120	—	—	—	—

RU型内圈/外圈的旋转精度Running accuracy of the inner ring/outer ring

单位Unit: μm

型号 Designation	内圈径向/轴向跳动 Radial runout tolerance/axial runout tolerance or inner ring			外圈径向/轴向跳动 Radial runout tolerance/axial runout tolerance or outer ring		
	P5级	P4级	P2级	P5级	P4级	P2级
RU42	4	3	2.5	8	5	4
RU66	5	4	2.5	10	6	5
RU85	5	4	2.5	10	6	5
RU124(G)	5	4	2.5	13	8	5
RU124X	5	4	2.5	13	8	5
RU148(G)	6	5	2.5	15	10	7
RU148X	6	5	2.5	15	10	7
RU178(G)	6	5	2.5	15	10	7
RU178X	6	5	2.5	15	10	7
RU228(G)	8	6	5	18	11	7
RU228X	8	6	5	18	11	7
RU297(G)	10	8	5	20	13	8
RU297X	10	8	5	20	13	8
RU445(G)	15	12	7	25	16	10
RU445X	15	12	7	25	16	10

SX型的内圈/外圈旋转精度

单位Unit: μm

Running accuracy of the inner ring/outer ring

型号 Designation	径向跳动 Radial runout tolerance	轴向跳动 axial runout tolerance
SX011814	10	10
SX011818	10	10
SX011820	10	10
SX011824	10	10
SX011828	15	10
SX011832	15	10
SX011836	15	10
SX011840	15	10
SX011848	20	10
SX011860	20	10
SX011868	25	10
SX011880	30	10
SX0118/500	40	10

XV型的内圈/外圈旋转精度

单位Unit: μm

Running accuracy of the inner ring/outer ring

型号 Designation	径向跳动 Radial runout tolerance	轴向跳动 axial runout tolerance
XV30	10	10
XV40	10	10
XV50	10	10
XV60	10	10
XV70	10	10
XV80	10	10
XV90	10	10
XV100	10	10
XV110	10	10

注：如需精度高于表列数值，请向SA公司咨询

Note: Any higher precision required which exceed above table value, please consult SA company.

注：因外圈为两半型结构，外圈跳动值为未分离前数值。如需精度高于表列数值，请向SA公司咨询。

Note: Since the structure of separable outer ring, runout value of outer ring is measured before separated. Any higher precision required which exceed above table value, please consult SA company.

CRBS/CRBC型内圈的旋转精度
Running accuracy of the inner ring

单位Unit: μm

轴承内径的公称尺寸 Bearing inner diameter (d) (mm)		径向跳动/轴向跳动 Radial runout/ axial runout tolerance
超过 above	以下 Or less	容许值
40	65	13
65	80	15
80	100	15
100	120	20
120	140	25
140	180	25
180	200	30

CRBS型外圈的旋转精度
Running accuracy of the outer ring

单位Unit: μm

轴承外径的公称尺寸 Bearing inner diameter (d) (mm)		径向跳动/轴向跳动 Radial runout/ axial runout tolerance
超过 above	以下 Or less	容许值
65	80	13
80	100	15
100	120	15
120	140	20
140	180	25
180	200	25
200	250	30

注：当要求CRBS/CRBC型的内圈旋转精度比表列的精度高时，请向SA公司咨询。
Note: Any higher precision required which exceed above table value, please consult SA company.

CSF型【谐波减速器专用】内圈的旋转精度Running accuracy of the inner ring

单位Unit: μm

型 号 Designation	内圈径向/轴向跳动容许值 Radial runout tolerance/axial runout tolerance or inner ring		
	P5级	P4级	P2级
CSF14-3516	4	3	2.5
CSF17-4216	4	3	2.5
CSF20-5016	4	3	2.5
CSF25-6218	5	4	2.5
CSF32-8022	5	4	2.5
CSF40-9524	5	4	2.5
CSF50-12031	5	4	2.5
CSF65-16039	6	5	2.5

※SA精密交叉滚子轴承的尺寸公差要求参见以下表列数据:

SA precision cross-roller bearing dimensional tolerance refer to below table:

RB/RE/CRBH型的内径尺寸公差Dimensional Tolerance of the bearing inner Diameter

单位Unit: μm

轴承内径的公称尺寸 Bearing inner diameter (d) (mm)		dm的公差 Tolerance							
		0级		P6级		P5级		P4级、P2级	
超过above	以下Or less	上Upper	下Lower	上Upper	下Lower	上Upper	下Lower	上Upper	下Lower
18	30	0	-10	0	-8	0	-6	0	-5
30	50	0	-12	0	-10	0	-8	0	-6
50	80	0	-15	0	-12	0	-9	0	-7
80	120	0	-20	0	-15	0	-10	0	-8
120	150	0	-25	0	-18	0	-13	0	-10
150	180	0	-25	0	-18	0	-13	0	-10
180	250	0	-30	0	-22	0	-15	0	-12
250	315	0	-35	0	-25	0	-18	-	-
315	400	0	-40	0	-30	0	-23	-	-
400	500	0	-45	0	-35	-	-	-	-
500	630	0	-50	0	-40	-	-	-	-
630	800	0	-75	-	-	-	-	-	-
800	1000	0	-100	-	-	-	-	-	-
1000	1250	0	-125	-	-	-	-	-	-

注: CRBS/CRBC/RU的内径公差为0级, 如果需要高等级的要求, 请向SA公司咨询。

Note: CRBS/CRBC/RU inner diameter tolerance is 0, Any higher precision required please consult SA company.

RB/RE/CRBH型的外径尺寸公差Dimensional Tolerance of the bearing outer Diameter

单位Unit: μm

轴承外径的公称尺寸 Bearing outer diameter (D) (mm)		dm的公差 Tolerance							
		0级		P6级		P5级		P4级、P2级	
超过above	以下Or less	上Upper	下Lower	上Upper	下Lower	上Upper	下Lower	上Upper	下Lower
30	50	0	-11	0	-9	0	-7	0	-6
50	80	0	-13	0	-11	0	-9	0	-7
80	120	0	-15	0	-13	0	-10	0	-8
120	150	0	-18	0	-15	0	-11	0	-9
150	180	0	-25	0	-18	0	-13	0	-10
180	250	0	-30	0	-20	0	-15	0	-11
250	315	0	-35	0	-25	0	-18	0	-13
315	400	0	-40	0	-28	0	-20	0	-15
400	500	0	-45	0	-33	0	-23	-	-
500	630	0	-50	0	-38	0	-28	-	-
630	800	0	-75	0	-45	0	-35	-	-
800	1000	0	-100	-	-	-	-	-	-
1000	1250	0	-125	-	-	-	-	-	-
1250	1600	0	-160	-	-	-	-	-	-

注: CRBS/CRBC/RU的外径公差为0级, 如果需要高等级的要求, 请向SA公司咨询。

Note: CRBS/CRBC/RU outerdiameter tolerance is 0, Any higher precision required please consult SA company.

SX型的内径和外径尺寸公差Dimensional Tolerance of the bearing inner and Diameter bearing outer Diamete

单位Unit: μm

型 号 Designation	dm的公差Tolerance		Dm的公差Tolerance	
	上Upper	下Lower	上Upper	下Lower
SX011814	+4	-15	0	-22
SX011818	+4	-18	0	-22
SX011820	+4	-18	0	-25
SX011824	+4	-18	0	-25
SX011828	+4	-21	0	-25
SX011832	+4	-21	0	-29
SX011836	+4	-21	0	-29
SX011840	+4	-24	0	-29
SX011848	+5	-24	0	-32
SX011860	+5	-27	0	-36
SX011868	+7	-29	0	-40
SX011880	+7	-29	0	-40
SX0118/500	+8	-32	0	-40

注：如需精度高于表列数值，请向SA公司咨询

Note: Any higher precision required which exceed above table value, please consult SA company.

XV型的内径和外径尺寸公差Dimensional Tolerance of the bearing inner and Diameter bearing outer Diamete

单位Unit: μm

型 号 Designation	dm的公差 Tolerance		Dm的公差 Tolerance	
	上Upper	下Lower	上Upper	下Lower
XV30	+8	-5	0	-19
XV40	+10	-6	0	-22
XV50	+10	-6	0	-22
XV60	+13	-6	0	-22
XV70	+13	-6	0	-22
XV80	+13	-6	0	-25
XV90	+16	-6	0	-25
XV100	+16	-6	0	-25
XV110	+16	-6	0	-25

注：如需精度高于表列数值，请向SA公司咨询

Note: Any higher precision required which exceed above table value, please consult SA company.

RB/RE/CRBH型的内外圈宽度公差Tolerance in the width of the inner and outer rings

单位Unit: μm

轴承内径(d) 的公称尺寸 Bearing inner diameter (mm)		B的公差 Tolerance		B1的公差 Tolerance	
		适用于RB型的内圈、RE型的外圈 Applied to the inner ring of RB and the outer ring of RE		适用于RB型的外圈、RE型的内圈 Applied to the outer ring of RB and the inner ring of RE	
超过above	以下Or less	上Upper	下Lower	上Upper	下Lower
18	30	0	-75	0	-100
30	50	0	-75	0	-100
50	80	0	-75	0	-100
80	120	0	-75	0	-100
120	150	0	-100	0	-120
150	180	0	-100	0	-120
180	250	0	-100	0	-120
250	315	0	-120	0	-150
315	400	0	-150	0	-200
400	500	0	-150	0	-200
500	630	0	-150	0	-200
630	800	0	-150	0	-200
800	1000	0	-300	0	-400
1000	1250	0	-300	0	-400

注：CRBS及CRBC的宽度公差均为-0.120~0mm，如果需要高等级的要求，请向SA公司咨询。

Note: CRBS and CRBC width tolerance are -0.120~0mm, Any higher precision required please consult SA company.

SX型的宽度公差Tolerance in the width of the inner and outer rings

单位Unit: μm

型 号 Designation	B		C	
	上Upper	下Lower	上Upper	下Lower
SX011814	0	-10	+100	-100
SX011818	0	-10	+120	-120
SX011820	0	-10	+120	-120
SX011824	0	-10	+120	-120
SX011828	0	-10	+120	-120
SX011832	0	-25	+130	-130
SX011836	0	-25	+130	-130
SX011840	0	-25	+130	-130
SX011848	0	-25	+130	-130
SX011860	0	-50	+140	-140
SX011868	0	-50	+140	-140
SX011880	0	-50	+150	-150
SX0118/500	0	-50	+160	-160

注：如需精度高于表列数值，请向SA公司咨询

Note: Any higher precision required which exceed above table value, please consult SA company.

XV型的宽度公差Tolerance in the width of the inner and outer rings

单位Unit: μm

型 号 Designation	C		B	
	上Upper	下Lower	上Upper	下Lower
XV30	0	-100	0	-75
XV40	0	-100	0	-75
XV50	0	-100	0	-75
XV60	0	-100	0	-75
XV70	0	-100	0	-75
XV80	0	-100	0	-75
XV90	0	-100	0	-75
XV100	0	-100	0	-75
XV110	0	-100	0	-75

注：如需精度高于表列数值，请向SA公司咨询

Note: Any higher precision required which exceed above table value, please consult SA company.

RU型的内外圈宽度公差Tolerance in the width of the inner and outer rings

单位Unit: μm

型 号 Designation	B/C	
	上 Upper	下 Lower
RU42	0	-75
RU66	0	-75
RU85	0	-75
RU124(G)	0	-75
RU124X	0	-75
RU148(G)	0	-75
RU148X	0	-75
RU178(G)	0	-100
RU178X	0	-100
RU228(G)	0	-100
RU228X	0	-100
RU297(G)	0	-100
RU297X	0	-100
RU445(G)	0	-100
RU445X	0	-100

注：如需精度高于表列数值，请向SA公司咨询

Note: Any higher precision required which exceed above table value, please consult SA company.

※CRBF型尺寸公差请向SA公司咨询

CRBF dimensional tolerance please consult SA company.

※SA精密交叉滚子轴承的径向游隙要求参见以下表列数据:

SA precision cross-roller bearing Radial clearance to below table:

RB/RE/CRBH/XV型轴承的内部径向游隙Radial clearance

单位Unit: μm

轴承内径(d)的公称尺寸mm Bearing inner diameter (d)		CC0		C0		C1	
超过 above	以下 Or less	最小 Min	最大 Max	最小 Min	最大 Max	最小 Min	最大 Max
—	30	-10	0	0	10	10	20
30	40	-10	0	0	10	10	20
40	50	-10	0	0	10	10	25
50	65	-10	0	0	10	10	25
65	80	-10	0	0	15	15	30
80	100	-10	0	0	15	15	35
100	120	-15	0	0	15	15	35
120	140	-15	0	0	20	20	45
140	160	-15	0	0	20	20	50
160	200	-15	0	0	20	20	50
200	250	-20	0	0	25	25	60
250	315	-20	0	0	25	25	60
315	400	-25	0	0	30	30	70
400	500	-30	0	0	40	40	85
500	630	-30	0	0	50	50	100
630	710	-30	0	0	60	60	120
710	800	-40	0	0	70	70	140

CRBS/CRBC型轴承的内部径向游隙Radial clearance

单位Unit: μm

轴承内径(d)的公称尺寸mm Bearing inner diameter	CC0		C0		C1	
	最小 Min	最大 Max	最小 Min	最大 Max	最小 Min	最大 Max
50	-8	0	0	15	30	56
60	-8	0	0	15	30	56
70	-8	0	0	15	30	56
80	-8	0	0	15	41	66
90	-8	0	0	15	41	66
100	-8	0	0	15	41	66
110	-8	0	0	15	41	66
120	-8	0	0	15	51	76
130	-8	0	0	15	51	76
140	-8	0	0	15	51	76
150	-8	0	0	15	51	76
160	-10	0	0	20	51	76
170	-10	0	0	20	51	76
180	-10	0	0	20	61	86
190	-10	0	0	20	61	86
200	-10	0	0	20	61	86

RU型轴承的内部径向游隙Radial clearance

单位Unit: μm

型 号 Designation	CC0		C0	
	最小 Min	最大 Max	最小 Min	最大 Max
RU42	-10	0	0	25
RU66	-10	0	0	30
RU85	-10	0	0	40
RU124(G/X)	-10	0	0	40
RU148(G/X)	-15	0	0	40
RU178(G/X)	-15	0	0	50
RU228(G/X)	-15	0	0	60
RU297(G/X)	-20	0	0	70
RU445(G/X)	-25	0	0	100

SX型轴承的内部径向游隙Radial clearance

单位Unit: μm

型号 Designation	CC0		C0		C1	
	最小 Min	最大 Max	最小 Min	最大 Max	最小 Min	最大 Max
SX011814	-15	-3	-6	3	0	10
SX011818	-15	-3	-6	3	0	10
SX011820	-20	-5	-8	4	0	20
SX011824	-20	-5	-8	4	0	20
SX011828	-20	-5	-8	4	0	20
SX011832	-20	-5	-8	4	0	20
SX011836	-25	-5	-10	5	0	25
SX011840	-25	-5	-10	5	0	25
SX011848	-25	-5	-10	5	10	30
SX011860	-25	-5	-10	5	10	40
SX011868	-25	-5	-10	5	10	40
SX011880	-25	-5	-10	5	10	50
SX0118/500	-30	-5	-12	6	10	60

CSF型【谐波减速器专用】轴承的内部径向游隙Radial clearance

单位Unit: μm

型号 Designation	CC0		C0	
	最小 Min	最大 Max	最小 Min	最大 Max
CSF14-3516	-10	0	0	20
CSF17-4216	-10	0	0	25
CSF20-5016	-10	0	0	25
CSF25-6218	-10	0	0	30
CSF32-8022	-10	0	0	35
CSF40-9524	-10	0	0	40
CSF50-12031	-10	0	0	40
CSF65-16039	-15	0	0	50

■SA精密交叉滚子轴承选型

SA precision cross-roller bearing selection:

精密交叉滚子轴承相比普通角接触球轴承刚性提高三到四倍。采用精密交叉圆柱滚子轴承，不需要和薄壁角接触球轴承一样配对安装，一套交叉滚子轴承就可以承受所有方向的受力，同时提高轴承的刚性三到四倍。

Precision crossed-roller bearing have increased rigidity, 3-4 times greater than the conventional type
Unlike the thin angular ball bearings installed in double rows, the cross array of roller allows a single cross-placed cylindrical roller bearings to receive loads in all directions, increasing the rigidity to 3-4 times greater than the conventional type.

※ 精密交叉滚子轴承选型时，必须明确以下要求：

Precision cross-roller bearing selection must confirm below requirement.

1. 确定轴承的工况

Confirm working condition

内圈或外圈旋转方式及旋转速度

Rotation by inner ring or outer ring and the rotation speed

机构允许的尺寸范围

Dimension range which the structure allows.

2. 选择合适的结构

Choose proper structure

根据轴承需要的寿命周期——选择合适的轴承尺寸

According to required service life——Choose proper bearing dimension

运转刚性——确定轴承的游隙、刚性和安装位置需要

Rigidity——Confirm the bearing clearance, rigidity, and install location.

回转精度——确定轴承精度等级

Rotation precision——Confirm bearing precision grade.

3. 回转力矩的需求

Rotation torque requirement

4. 注油和润滑方式

Lubrication and the method.

如在选型过程中有不确定的内容，请联系SA公司技术部门。

Any uncertain requirement in selection please contact SA

■SA精密交叉滚子轴承基本额定动负荷与寿命：

SA precision cross-roller bearing basic rated dynamic load and lifetime

※额定寿命L

Rated lifetime

交叉滚子轴承的基本额定动负荷（C）就是，让一批相同的交叉滚子轴承进行逐个运行时，它们的额定寿命为 $L = 10^6$ 转时的大小和方向都不变的径向方向负荷。基本额定动负荷（C）的参数可参考尺寸表。

The basic dynamic load rating（C）of the Cross-Roller bearing shows the radial load with interlocked direction and magnitude, under which the rated life $L = 10^6$ revolutions when a group of identical cross-roller bearing units independently operate under the same conditions. The basic dynamic load rating（C）is indicated in the specification tables.

交叉滚子轴承的寿命按下式进行计算。

The service life of Cross-Roller Bearing is obtained from the following equation.

$$L = \left(\frac{f_T \cdot C}{f_w \cdot P_C} \right)^{\frac{10}{3}}$$

L：额定寿命（ 10^6 转）

Rated life(10^6 rotation)

（让一批相同的交叉滚子轴承在相同条件下逐个进行运行，其中的90%不产生由于滚动疲劳所引起的表面剥落时，所能旋转的总旋转数）

(The total number of revolutions that 90% of a group of identical cross-roller bearing units independently operating under the same conditions can achieve without showing flaking from rolling fatigue)

C：基本额定动负荷(kN)

Basic dynamic load rating

P_C ：等效动径向负荷(kN)

Dynamic equivalent radial load

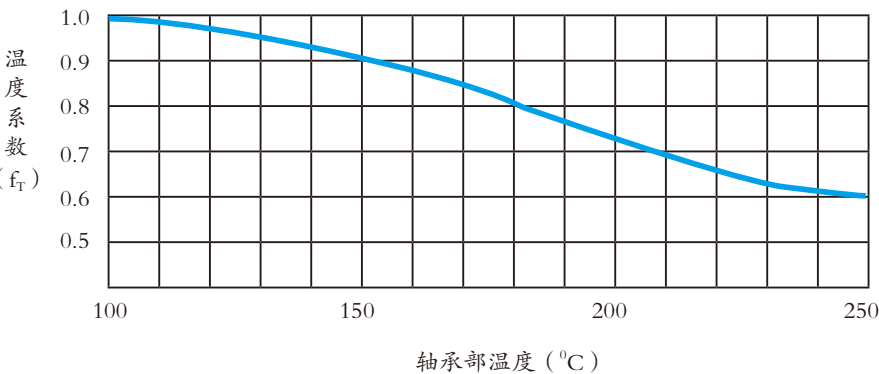
f_T ：温度系数（参照图1）

Temperature factor (see Fig.1)

f_w ：负荷系数（参照表1）

Load factor (see Table 1)

【图1 温度系数图 Fig.1 Temperature factor】



通常的使用温度为80° C 以下。当使用温度超过80° C 时，请与SA公司进行沟通。

The normal service temperature is 80° C or below, If the product is to be used at a higher temperature, Please contact SA

【表1 负荷系数(f_w) Table 1 Load Factor (f_w)】

使用条件Service condition	f_w
没有冲击的平稳运动的情况Smooth motion without impact	1 ~ 1.2
普通运动的情况Normal motion	1.2 ~ 1.5
有激烈冲击的情况Motion with severe impact	1.5 ~ 3

※ 等效径向动负荷: P_c
Dynamic equivalent radial load: P_c

交叉滚子轴承的等效径向动负荷按下式计算

The dynamic equivalent radial load of the cross-roller bearing is obtained from the following equation.

$$P_c = X \cdot \left(F_r + \frac{2M}{d_p} \right) + Y \cdot F_a$$

P_c : 等效径向动负荷(kN)

Dynamic equivalent radial load

X : 动径向系数 (参照表2)

Dynamic radial factor (see Table 2)

F_r : 径向负荷(kN)

Radial load

Y : 动轴向系数 (参照表2)

Dynamic axial factor (see Table 2)

F_a : 轴向负荷(kN)

Axial load

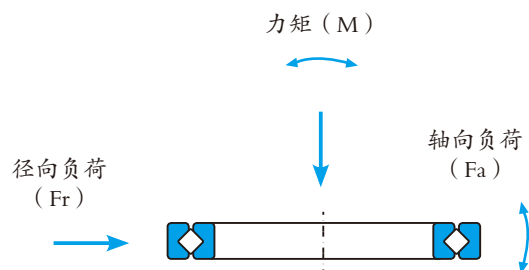
d_p : 滚子的节圆直径(mm)

Roller pitch circle diameter (mm)

M : 力矩(kN·mm)

Moment

【图2 轴承动态受力情况图示 Fig.2 Bearing dynamic loads】



【表2 动径向系数与动轴向系数 Table 2 Dynamic radial factor and Dynamic axial factor】

分类Classification	X	Y
$\frac{F_a}{F_r + 2M/d_p} \leq 1.5$	1	0.45
$\frac{F_a}{F_r + 2M/d_p} > 1.5$	0.67	0.67

当 $F_r = 0\text{kN}$, $M = 0\text{kN}\cdot\text{mm}$ 时, 请按 $X = 0.67$, $Y = 0.67$ 进行计算。

If $F_r = 0\text{kN}$ and $M = 0\text{kN}\cdot\text{mm}$, Perform calculation while assuming that $X = 0.67$ and $Y = 0.67$

■SA精密交叉滚子轴承基本额定静负荷与静安全系数

SA precision cross-roller bearing basic static load rating & static safety factor

基本额定静负荷 C_0 就是，在承受最大应力的接触部位，滚子的永久变形量和滚动面的永久变形量之和达到滚子直径的0.0001倍时，方向和大小都一定的静止负荷。如果永久变形量之和超过滚子直径的0.0001倍，运转时就会出现故障。这个基本额定静负荷 C_0 的参数可参考尺寸表。对于静的或动的负荷，有必要考虑以下的静的安全系数。

The basic static load rating C_0 refer to the static load with constant direction and magnitude, under which the calculated permanent deformation between the roller and the raceway achieve to 0.0001 times than the diameter of roller. If the permanent deformation exceeds this level, it will affect the rotation. This value is indicated as C_0 in the specification tables.

When a load is statically or dynamically applied, it is necessary to consider the static safety factor as shown below.

$$\frac{C_0}{P_0} = f_s$$

f_s : 静的安全系数 (参照表3)

Static safety factor (see table 3)

C_0 : 基本额定静负荷(kN)

Basic static load rating (kN)

P_0 : 等效径向静负荷(kN)

Static equivalent radial load (kN)

【表3 静的安全系数 (f_s) Table 3 Static safety factor (f_s)】

负荷条件Load condition	f_s 的下限Lower limit of f_s
普通负荷Normal load	1 ~ 2
冲击负荷Impact load	2 ~ 3

等效径向静负荷: P_0 Static Equivalent Radial Load: P_0

交叉滚子轴承的等效径向静负荷按下式计算

The static equivalent radial load of the Cross-roller bearing is obtained from the following equation.

$$P_0 = X_0 \cdot \left(Fr + \frac{2M}{dp} \right) + Y_0 \cdot Fa$$

P_0 : 等效径向静负荷(kN)

Static equivalent radial load

X_0 : 静径向系数($X_0 = 1$)

Static radial factor

Fr : 径向负荷(kN)

Radial load

Y_0 : 静轴向系数($Y_0 = 0.44$)

Static axial factor

Fa : 轴向负荷(kN)

Axial load

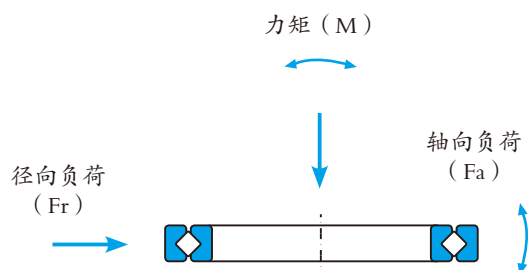
dp : 滚子的节圆直径(mm)

Roller pitch circle diameter

M : 力矩(kN · mm)

Moment

【图3 轴承静态受力情况图示 Dig 3 Bearing load condition】



容许力矩: M_0 Permissible Moment

交叉滚子轴承的容许力矩按下式计算。

The permissible moment of the Cross-roller bearing is obtained from following equation.

$$M_0 = C_0 \cdot d_p / 2$$

M_0 : 容许力矩(kN·mm)

Permissible moment

C_0 : 基本额定静负荷(kN)

Basic static load rating

d_p : 滚子的节圆直径(mm)

Roller pitch circle diameter

容许轴向负荷:

F_{a0} Permissible Axial load

交叉滚子轴承的容许轴向负荷按下式计算。

The permissible axial load of the Cross-roller bearing is obtained from following equation.

$$F_{a0} = C_0 / Y_0$$

F_{a0} : 容许轴向负荷(kN)

Permissible axial load

Y_0 : 静轴向系数($Y_0 = 0.44$)

Static axial factor

■SA精密交叉滚子轴承相配合部位的设计

SA Precision Cross-roller bearing designing the match parts

由于交叉滚子轴承的紧凑结构和薄壁原因，在设计其配合机构和压紧法兰时应特别注意：

对于双外圈或双内圈结构，轴承座孔的刚度不够，法兰或压紧螺栓会导致轴承运转不畅甚至内圈或外圈卡死；同时当机构承受负荷会造成轴承变形,严重影响轴承性能及寿命。

Since the Cross-roller bearing is a compact, thin device, special consideration must be given to the rigidity of the housing and the presser flange.

With the types having a separable outer ring, insufficiency in the strength of the housing, pressure flange or the presser bolt will result in the inability to evenly hold the inner or outer ring, or the deformation of the bearing when a moment load is applied. Consequently, the contact area of the rollers will become uneven, causing the bearing's performance to significantly deteriorate.

※推荐的结构配置

Recommended structure

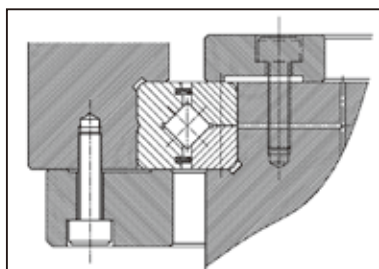


图4 外圈旋转推荐结构形式
Outer ring rotation

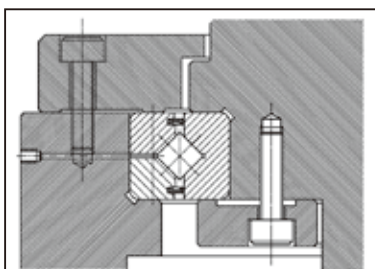


图5 内圈旋转推荐结构形式
Inner ring rotation

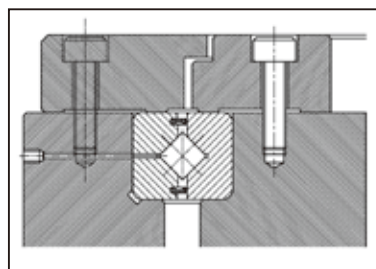


图6 内、外圈都旋转同方向固定形式
Both inner/outer ring rotation in same direction

轴承相配合结构件要求

Bearing match parts requirement

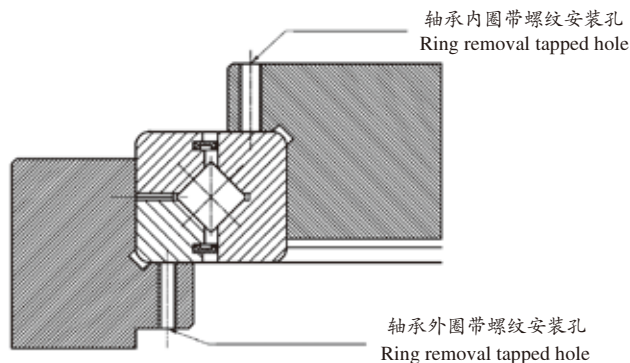


图7 (Fig7)

对于精密交叉滚子轴承对相关配合结构件的要求必须保证具有足够的刚度。如上图所示的普通型交叉滚子轴承对外圈支承座的壁厚T的要求必须保证：

The match parts of Cross-roller bearing must make sure it have enough rigidity, Refer to above Fig7 shows the normal cross-roller bearing housing thickness T must make sure:

$$T \geq (D-d)/2 \times 0.6$$

D — 轴承的外径名义尺寸

Outer diameter of the outer ring

d — 轴承的内径名义尺寸

Inner diameter of the inner ring

如果轴承的内圈或者外圈均有安装孔，则轴承自身刚性要优于普通型交叉滚子轴承，此结构不会导致轴承变形或其他影响。如果外圈转动，不要内圈受力；反之亦然。

If both inner/outer ring have mounting holes, the bearing rigidity will be better than normal cross-roller bearing, this structure will not effect bearing deformation. When removing the outer ring, do not press the inner ring, or vise versa.

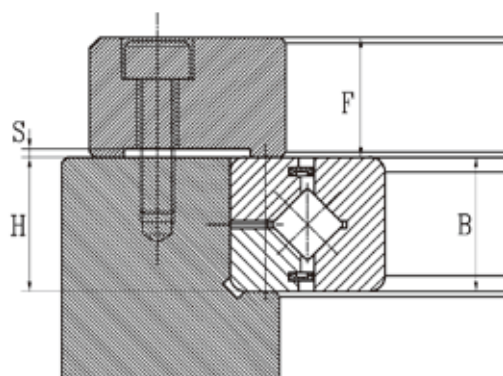


图8 (Fig8)

对轴承端面上、下固定法兰的要求如上图所示，其中

Bearing upper and lower presser flange as show on Fig8

$F=B \times 0.5 \sim B \times 1.2$ 法兰的厚度

Flange thickness

$H=B 0 -0.1$ 支承座的高度

Housing height

$S=0.5\text{mm}$ 法兰压面与轴承和支承座端面分别压紧预留间隙

Clearance of the flange and housing

设计压紧法兰的厚度(F)和法兰与配合面的间隙 (S) 按照以上的公式计算；螺栓的数量，原则是螺栓越多机构越稳固。通常情况下按照后节所说明的螺栓数均布。

轴承座和轴的材料是轻质的铝，我们推荐钢制的法兰。

只有保证轴承相配合部件足够的刚度，而且其中压紧法兰面与支承座和轴承端面的接触面之间必须分隔，留有一定的间隙S,这样才可以保证轴承端面压紧后不会因为部件结构刚性不足而造成相应的变形影响轴承的旋转精度和灵活性。

The presser thickness F and the clearance of flange and housing S are obtained from above equation;As for the number of presser bolts,the greater the number of the bolts,the more stable the system becomes.As a guide,however,it is normally appropriate to use the number of bolts indicated in following instruction.

Even if the bearing housing and the shaft are made of light alloy, it is recommendable to select a steel-based material for the presser flange.

Make sure the bearing match parts have enough rigidity,and also must have a clearance S between presser flange and bearing housing ,it is to make sure the bearing will not deformation caused by the less-rigidity of match parts,which will not effect the bearing rotation precision and flexibility.

■SA精密交叉滚子轴承配合公差： SA Precision cross-roller bearing tolerance

对于带安装孔系列的交叉滚子轴承的配合尺寸没有非常严格的要求，安装的配合精度达到h7孔H7座即可。
Fitting for the cross-roller bearing have mounting holes is basically not required. However, for fitting requiring positioning accuracy, h7 and H7 are recommended.

※对于普通系列交叉滚子轴承，配合公差请参照表4参数。
For the normal series cross-roller bearing, refer to table 4

【表4 普通系列轴承径向游隙表 Normal series bearing radial clearance table】

游隙 Clearance	应用场合 Service condition		配合公差 Tolerance	
			轴 shaft	座孔 Housing
C0	内圈旋转负荷 Inner ring rotation load	正常负荷 Normal load	h5	H7
		大冲击及承受倾覆力矩 Large impact and moment	h5	H7
	外圈旋转负荷 Outer ring rotation load	正常负荷 Normal load	g5	Js7
		大冲击及承受倾覆力矩 impact and moment	g5	Js7
C1	内圈旋转负荷 Inner ring rotation load	正常负荷 Normal load	j5	H7
		大冲击及承受倾覆力矩 Large impact and moment	k5	Js7
	外圈旋转负荷 Outer ring rotation load	正常负荷 Normal load	g6	Js7
		大冲击及承受倾覆力矩 Large impact and moment	h5	K7

注意：对于C0游隙的配合，请注意避免重复预载，所以对于C0组游隙的机器人关节或回转机构，请使用 g5 和 H7 公差。
Note: For the fitting for clearance CC0, avoid interference because it will cause an excessive preload. As for the fitting when you have selected clearance CC0 for the joints or swiveling unit of a robot, the combination of g5 and H7 is recommended.

轴承在安装时推荐使用的螺栓数量及其要求的预紧负荷，参考表5。

The number of bolts and preload requirement in assembly please refer to table5

同时，即使轴或轴承座的材料是轻合金时，侧面压紧法兰盘的材料还是建议采用铁质材料。

拧紧压紧螺栓时请用扭矩扳手将螺栓结实地拧紧。

Meanwhile,even the material of shaft or bearing housing are made of light alloy, it is recommendable to select a steel-based material for the presser flange.

When tightening the presser bolt,firmly secure them using a torque wrench or the like so that they will not loosen.

【表5 轴承紧固推荐的螺栓数量及螺栓尺寸 Table5 Number of presser bolts and bolt sizes】

轴承外径（mm） Outer diameter of the outer ring mm		推荐螺栓数量 No.of bolts(reference value)	推荐螺栓直径 Bolt size(reference value)
超过 above	到 or less		
—	100	≥ 8	M3 ~ M5
100	200	≥ 12	M4 ~ M8
200	500	≥ 16	M5 ~ M12
500	—	≥ 24	M12 ~

轴承座或侧面压紧法兰盘如果是用一般的中硬度钢材时，拧紧扭矩如表6所示。

Table 6 shows tightening torques for the housing and presser flanges made of typical steel materials with medium hardness.

【表6 轴承紧固推荐的预紧负荷 Table 6 Bolt tightening torque】

螺栓直径 Screw model No.	拧紧力矩 Tightening torque Nm	螺栓直径 Screw model No.	拧紧力矩 Tightening torque Nm
M3	2	M10	70
M4	4	M12	120
M5	9	M16	200
M6	14	M20	390
M8	30	M22	530

■SA精密交叉滚子轴承的安装： SA Precision cross-roller bearing assembly

安装交叉滚子轴承时请按以下程序进行。

When assembling the cross-roller bearing, follow the steps below.

1. 安装前零部件的检查

Inspecting the parts before assembling them

将轴承座或其他的安装零部件进行洗净，消除污垢，并确认各零部件的毛刺是否已被除去。

Thoroughly clean the housing and other parts to be assembled, and check if there is no burr or knots.

2. 往轴承座或轴里装入

Installing the cross-roller bearing into the housing or onto the shaft.

由于是薄壁轴承，装入时易发生倾斜，请用塑料锤等一边找平，一边在圆周方向均匀地敲打，一点一点地装入，直到能通过声音确认与接触面完全地靠紧时为止。

Since the cross-roller bearing is a thin bearing, it tends to tilt as it is installed. To prevent it, gradually drive the cross-roller bearing into the housing or onto the shaft by gently hitting it with a plastic hammer while keeping it horizontal. Be sure to keep hammering it with much care until you hear it fully contact the reference surface.

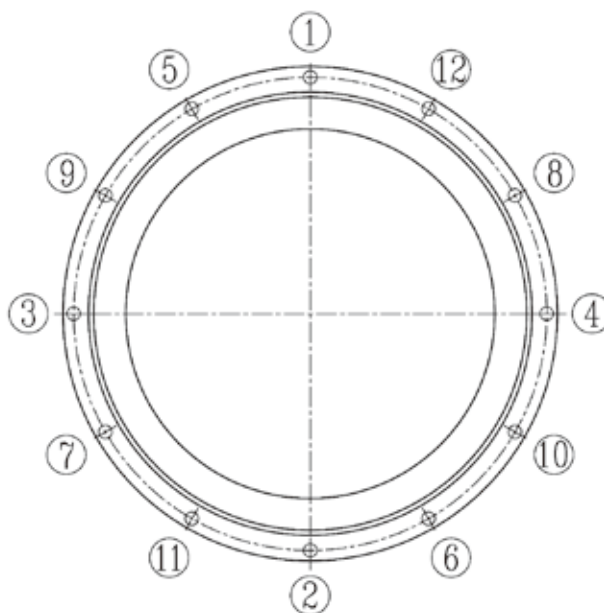


图9 螺栓在紧固时参考以上顺序用2-3个循环交叉拧紧螺栓

Fig 9 Tightening sequence by 2 or 3 repeat

3. 侧面压紧法兰盘的安装

Attaching the presser flange

1) 将侧面压紧法兰盘放置到位后，将其在圆周方向来回摇动几次，以调整安装螺栓的位置。

Placing the presser flange onto the cross-roller bearing. Rock the flange several times to match the bolt holes.

2) 安装压紧螺栓。用手拧螺栓时，确认没有因螺栓孔偏离引起螺栓难以拧入。

Insert the presser bolts into the holes. Manually turn the bolts and make sure they do not show skewing caused by misalignment of the bolts.

3) 压紧螺栓的拧紧由暂时拧紧到正式拧紧要分为3-4个阶段，按对角线的顺序反复拧紧。

在拧紧被分成两半分割的内圈或外圈的压紧螺栓时，拧紧过程中经常将一体型的外圈或内圈稍微转动一下，就能使两半分割部分的偏离得到修正。

Fasten the presser bolts in three to four steps from temporary to full fastening by repeatedly securing the bolts in the diagonal order, as shown in Fig9. When tightening the separable inner or outer ring, slightly turning the integral outer or inner ring will correct the dislocation between the ring and the body.

■SA精密交叉滚子轴承润滑：

SA Precision cross-roller bearing lubrication

在交叉滚子轴承中，因已全部装入了优质的2号锂基润滑脂，所以到货后就可直接使用。但是，与一般的滚子轴承相比，内部空间容积少，并且充分的润滑剂对于该种结构滚子与滚道面比较紧密接触的结构来说是至关重要，故必需定期补充润滑脂。

补充润滑脂是通过设在内外圈上的，与油沟相连接的润滑油孔来进行的。补充间隔通常要求是，即使旋转频率少时，也为每6个月到12个月。补充润滑脂时，请用同种的润滑脂补充到轴承内部的每个地方。对于高频率旋转的场合，根据使用要求，更要缩短再润滑周期。

同时，润滑脂被装满后，由于润滑脂的阻力，轴承初期旋转时扭矩会短时间地增大，等多余的润滑脂由密封部位溢出后，就会回到正常的扭矩值。另外，在超薄型的轴承中，没有设置油沟，请在与轴承配合部位设置相应油沟，以便于及时补充润滑油脂。

Since each Cross-roller bearing unit contains high-quality lithium soap group grease No.2, you can start using the product without replenishing grease. However, the product requires regular lubrication since it has a smaller internal space than ordinary roller bearings and because the rollers need frequent lubrication due to their rolling contact structure.

To replenish grease, it is necessary to secure greasing holes that lead to the oil grooves formed on the inner and outer rings. As for the lubrication interval, normally replenish grease of the same group so that it is distributed throughout the interior of the bearing at least every six to 12 months. In locations of high frequency rotation, it must shorten the lubrication interval.

When the bearing is filled up with grease, the initial rotational torque temporarily increases. However, surplus grease will run off of the seals and the torque will return to the normal level in a short period. The thin type does not have an oil groove. Secure an oil groove inside of the housing for lubrication.

■SA精密交叉滚子轴承使用时注意事项：

SA Precision cross-roller bearing Note on use

被分成两半的内圈或外圈是用特殊的铆钉或螺栓、螺母固定后不可分开的。直接装入轴承座中使用。同时，如果间隔保持器的再装配出错，对轴承的旋转性能会有很大的影响。所以请用户不要随便将轴承拆开。

1) 内圈或外圈的接合处有时会多少有些偏离，在装入轴承座之前，请将固定内圈或外圈的螺栓松动，用塑料锤进行修正后再安装。（固定铆钉会随着轴承座而产生变形。）

2) 安装或拆卸时，请不要给固定铆钉或螺栓施加外力。

3) 请注意安装零部件的尺寸公差，使侧面压紧法兰盘能从侧面将内圈或外圈结实地压紧。

The separable inner or outer ring is fastened in place using special rivets, bolts or nuts when delivered. When installing it to the system, do not disassemble it. Also, erroneously installing the spacer or retainer will significantly affect the rotational performance of the system. So, please do not disassemble the bearing.

1) The matching mark of the inner or outer ring may be slightly misaligned when delivered. In that case, loosen the bolts that secure the inner or outer ring, and correct the alignment using a plastic hammer or the like, before installing it to the housing. (Let the securing rivets follow the housing)

2) When installing or removing the Cross-roller bearing, do not apply force to the fixing rivets or the bolts.

3) When mounting the presser flange, take into account the dimensional tolerances of the parts so that the flange firmly holds the inner and outer ring from the side.

精密交叉滚子轴承

PRECISION CROSS-ROLLER BEARING

交叉圆柱滚子轴承是在内圈和外圈之间1:1配置相应的滚子而组成。结构紧凑，滚动面为线接触，因此轴承受力时套圈与滚动体弹性变形小，同时承载径向、轴向负荷及力矩负荷等联合负荷。此类轴承被广泛用于需要高刚性和高旋转精度而又对轴承尺寸要求较小的场合，比如工业机器人、机床及医疗设备等的回转位置。

交叉圆柱滚子轴承内滚动体之间有保持架、隔离块及满滚子型等多种结构，根据使用场合进行选用，带隔离块适合于回转力矩较小、转速较高的场合，满装滚子型结构适合于低转速较重负荷的场合。

交叉圆柱滚子轴承具有密封型结构，是在轴承两侧装有特殊橡胶的密封圈，对防尘和润滑脂漏泄具有良好的密封效果。

我公司现生产可替代IKO、THK、INA等公司轴承产品的RB、SX、RE、RA、XV、CRBH、CRBS、CRBC、RU、CRBF等系列，根据使用要求可选择带安装孔、带保持架、带隔离块或满滚子及双面密封等多种结构，精度等级最高可以达到P2级。

Cross-roller bearing with the compact structure of cylindrical roller are arranged 1:1 placed between inner ring and outer ring. Rollers and groove are linear contact. Rings and rollers have small elastic deformation when the bearing achieve loads, Meanwhile, It can achieve radial load, axial load, tilting moment and other combined loads. The Cross-roller bearings are widely used in locations where need high rigidity and high rotation speed but also required minimum size, Such as joints and swiveling units of industrial robots, the swiveling center of machine tools and medical equipment etc.

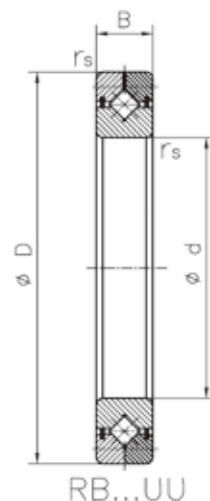
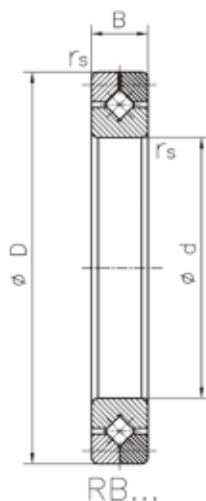
Cross-roller bearing have variety types such as cage or spacer between rollers, full complement cylindrical rollers. Selection is depend on working conditions. The structure with spacer type is optimal for application with small turning moment, high rotation. Full complement types is optimal for application with lower rotation speed and heavier loads.

Cross-roller bearing have seal types, which have special rubber seal on both sides, it have good sealing effect for anti-dust and grease leak.

SA can produce and replace the bearings of IKO, THK, INA, types are RB、SX、RE、RA、XV、CRBH、CRBS、CRBC、RU、CRBF etc. According to the operating requirements to select different types, such as mounting hole type, cage type, spacer type, full complement cylindrical roller type, double seal type etc, the precision can reach to P2.

※RB型（外圈两半，内圈整体型）

Model RB (Separable Outer Ring Type for Inner Ring Rotation)



轴承型号 Designation	外形尺寸 Dimensions(mm)				额定负荷 Basic Load ratings(KN)		重量 Weight
	d	D	B	rsmin	Cr	Cor	kg
RB2008	20	36	8	0.5	3.23	3.1	0.04
RB2508	25	41	8	0.5	3.63	3.83	0.05
RB3010	30	55	10	0.6	7.35	8.36	0.12
RB3510	35	60	10	0.6	7.64	9.12	0.13
RB4010	40	65	10	0.6	8.33	10.6	0.15
RB4510	45	70	10	0.6	8.62	11.3	0.17
RB5013	50	80	13	0.6	16.7	20.9	0.29
RB6013	60	90	13	0.6	18	24.3	0.33
RB7013	70	100	13	0.6	19.4	27.7	0.38
RB8016	80	120	16	0.6	30.1	42.1	0.74
RB9016	90	130	16	1	31.4	45.3	0.81
RB10016	100	140	16	1	31.7	48.6	0.83
RB10020	100	150	20	1	33.1	50.9	1.45
RB11012	110	135	12	0.6	12.5	24.1	0.4
RB11015	110	145	15	0.6	23.7	41.5	0.75
RB11020	110	160	20	1	34	54	1.56
RB12016	120	150	16	0.6	24.2	43.2	0.72
RB12025	120	180	25	1.5	66.9	100	2.62
RB13015	130	160	15	0.6	25	46.7	0.72
RB13025	130	190	25	1.5	69.5	107	2.82
RB14016	140	175	16	1	25.9	50.1	1
RB14025	140	200	25	1.5	74.8	121	2.96

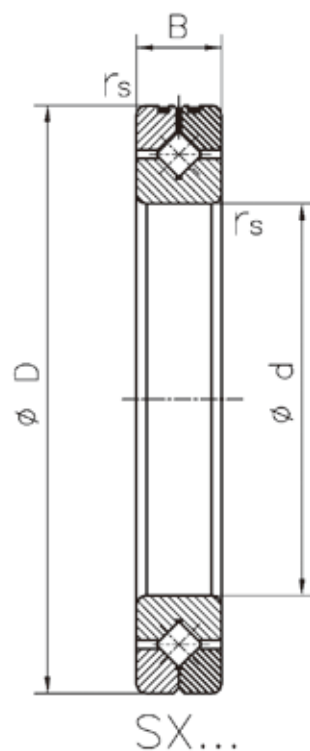
※RB型（外圈两半，内圈整体型）

Model RB (Separable Outer Ring Type for Inner Ring Rotation)

轴承型号 Designation	外形尺寸 Dimensions(mm)				额定负荷 Basic Load ratings(KN)		重量 Weight
	d	D	B	rsmin	Cr	Cor	kg
RB15013	150	180	13	0.6	27	53.5	0.68
RB15025	150	210	25	1.5	76.8	128	3.16
RB15030	150	230	30	1.5	100	156	5.3
RB16025	160	220	25	1.5	81.7	135	3.14
RB17020	170	220	20	1.5	29	62.1	2.21
RB18025	180	240	25	1.5	84	143	3.44
RB19025	190	240	25	1	41.7	82.9	2.99
RB20025	200	260	25	2	84.2	157	4
RB20030	200	280	30	2	114	200	6.7
RB20035	200	295	35	2	151	252	9.58
RB22025	220	280	25	2	92.3	171	4.1
RB24025	240	300	25	2.5	68.3	145	4.5
RB25025	250	310	25	2.5	69.3	150	4.97
RB25030	250	330	30	2.5	126	244	8.1
RB25040	250	355	40	2.5	195	348	14.8
RB30025	300	360	25	2.5	76.3	178	5.88
RB30035	300	395	35	2.5	183	367	13.4
RB30040	300	405	40	2.5	212	409	17.2
RB35020	350	400	20	2.5	54.1	143	3.9
RB40035	400	480	35	2.5	156	370	14.5
RB40040	400	510	40	2.5	241	531	23.5
RB40070	400	580	70	2.5	470	811	72.4
RB45025	450	500	25	1	61.7	182	6.6
RB50025	500	550	25	1	65.5	201	7.3
RB50040	500	600	40	2.5	239	607	26
RB50050	500	625	50	2.5	267	653	41.7
RB50070	500	680	70	2.5	536	1020	86.1
RB60040	600	700	40	3	264	721	30.6
RB60070	600	780	70	3	591	1230	102
RB600120	600	870	120	3	1250	2270	274
RB70045	700	815	45	3	281	836	46.5
RB70070	700	880	70	3	630	1390	115
RB700150	700	1020	150	3	1660	3010	478
RB80070	800	950	70	4	468	1330	109
RB800100	800	1030	100	4	936	2040	247
RB90070	900	1050	70	4	494	1490	120
RB1000110	1000	1250	110	5	1220	3220	360
RB1250110	1250	1500	110	5	1350	3970	440

※SX型（外圈两半，内圈整体型）

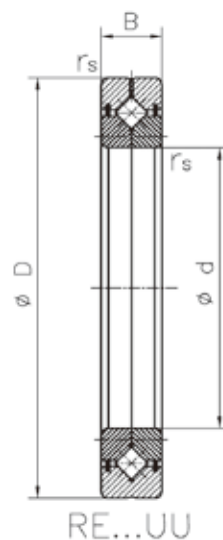
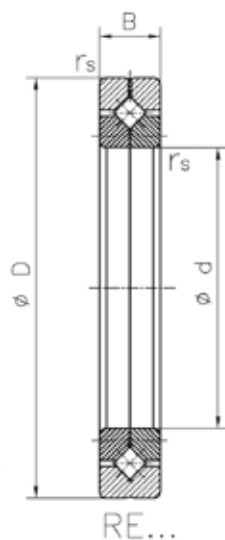
Model SX (Separable Outer Ring Type for Inner Ring Rotation)



轴承型号 Designation	外形尺寸 Dimensions(mm)				额定负荷 Basic Load ratings(KN)		重量 Weight
	d	D	B	rsmin	Cr	Cor	kg
SX011814	70	90	10	0.6	11	20.4	0.3
SX011818	90	115	13	1	18.3	36.5	0.4
SX011820	100	125	13	1	19.4	40.5	0.5
SX011824	120	150	16	1	27	59	0.8
SX011828	140	175	18	1.1	45	96	1.1
SX011832	160	200	20	1.1	48	111	1.7
SX011836	180	225	22	1.1	69	153	2.3
SX011840	200	250	24	1.5	72	170	3.1
SX011848	240	300	28	2	105	255	5.3
SX011860	300	380	38	2.1	173	425	12
SX011868	340	420	38	2.1	185	485	13.5
SX011880	400	500	46	2.1	275	720	24
SX0118/500	500	620	56	3	395	1100	44

※RE型（内圈两半，外圈整体型）

Model RE(Two-piece Inner Ring Type for Outer Ring Rotation)

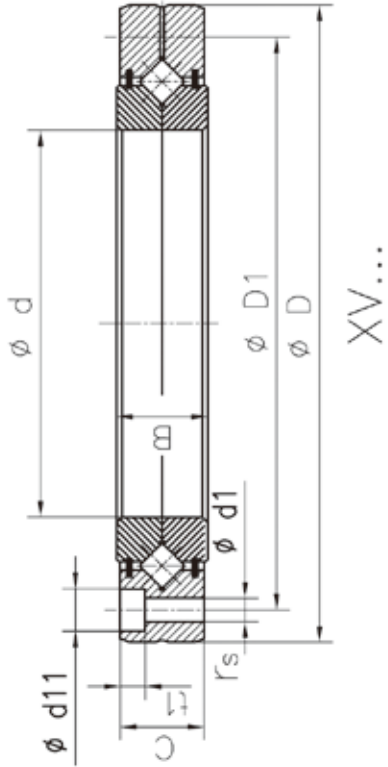


轴承型号 Designation	外形尺寸 Dimensions(mm)				额定负荷 Basic Load ratings(KN)		重量 Weight
	d	D	B	rsmin	Cr	Cor	kg
RE2008	20	36	8	0.5	3.23	3.1	0.04
RE2508	25	41	8	0.5	3.63	3.83	0.05
RE3010	30	55	10	0.6	7.35	8.36	0.12
RE3510	35	60	10	0.6	7.64	9.12	0.13
RE4010	40	65	10	0.6	8.33	10.6	0.15
RE4510	45	70	10	0.6	8.62	11.3	0.17
RE5013	50	80	13	0.6	16.7	20.9	0.29
RE6013	60	90	13	0.6	18	24.3	0.33
RE7013	70	100	13	0.6	19.4	27.7	0.38
RE8016	80	120	16	0.6	30.1	42.1	0.74

轴承型号 Designation	外形尺寸 Dimensions(mm)				额定负荷 Basic Load ratings(KN)		重量 Weight
	d	D	B	rsmin	Cr	Cor	kg
RE9016	90	130	16	1	31.4	45.3	0.81
RE10016	100	140	16	1	31.7	48.6	0.83
RE10020	100	150	20	1	33.1	50.9	1.45
RE11012	110	135	12	0.6	12.5	24.1	0.4
RE11015	110	145	15	0.6	23.7	41.5	0.75
RE11020	110	160	20	1	34	54	1.56
RE12016	120	150	16	0.6	24.2	43.2	0.72
RE12025	120	180	25	1.5	66.9	100	2.62
RE13015	130	160	15	0.6	25	46.7	0.72
RE13025	130	190	25	1.5	69.5	107	2.82
RE14016	140	175	16	1	25.9	50.1	1
RE14025	140	200	25	1.5	74.8	121	2.96
RE15013	150	180	13	0.6	27	53.5	0.68
RE15025	150	210	25	1.5	76.8	128	3.16
RE15030	150	230	30	1.5	100	156	5.3
RE16025	160	220	25	1.5	81.7	135	3.14
RE17020	170	220	20	1.5	29	62.1	2.21
RE18025	180	240	25	1.5	84	143	3.44
RE19025	190	240	25	1	41.7	82.9	2.99
RE20025	200	260	25	2	84.2	157	4
RE20030	200	280	30	2	114	200	6.7
RE20035	200	295	35	2	151	252	9.58
RE22025	220	280	25	2	92.3	171	4.1
RE24025	240	300	25	2.5	68.3	145	4.5
RE25025	250	310	25	2.5	69.3	150	4.97
RE25030	250	330	30	2.5	126	244	8.1
RE25040	250	355	40	2.5	195	348	14.8
RE30025	300	360	25	2.5	76.3	178	5.88
RE30035	300	395	35	2.5	183	367	13.4
RE30040	300	405	40	2.5	212	409	17.2
RE35020	350	400	20	2.5	54.1	143	3.9
RE40035	400	480	35	2.5	156	370	14.5
RE40040	400	510	40	2.5	241	531	23.5
RE45025	450	500	25	1	61.7	182	6.6
RE50025	500	550	25	1	65.5	201	7.3
RE50040	500	600	40	2.5	239	607	26
RE50050	500	625	50	2.5	267	653	41.7
RE60040	600	700	40	3	264	721	30.6

※XV型（内圈两半，外圈整体型并具安装孔型）

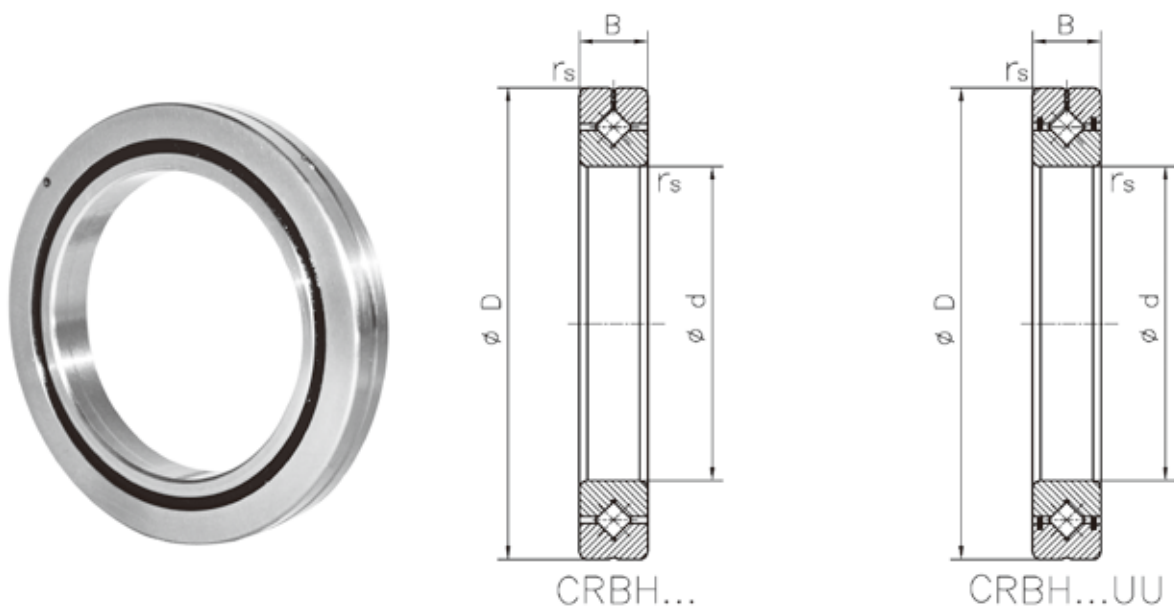
Model XV(Two-piece Inner Ring Type for Outer Ring Rotation with mounting holes)



轴承型号 Designation	外形尺寸 Dimensions(mm)												额定负荷 Basic Load ratings(KN)		重量 Weight
	d	D	B	C	D1	n1	d1	dl	d11	t1	rs	Cr	Cor		
XV30	30	75	15	14	60	12	4.6	8	8	4.6	2 × 20°	7.4	10.4	0.37	
XV40	40	85	15	14	70	12	4.6	8	8	4.6	2 × 20°	8.7	13.8	0.44	
XV50	50	100	17	16	85	12	5.6	10	10	5.4	2 × 20°	13.1	21.5	0.67	
XV60	60	110	17	16	95	16	5.6	10	10	5.4	2 × 20°	14.4	25.5	0.75	
XV70	70	120	17	16	105	16	5.6	10	10	5.4	2 × 20°	15.1	28	0.84	
XV80	80	135	19	18	120	16	6.6	11	11	6.4	2 × 20°	21.4	40.5	1.18	
XV90	90	145	19	18	130	16	6.6	11	11	6.4	2 × 20°	22.3	44.5	1.29	
XV100	100	170	23	22	150	16	9	15	15	8.5	2 × 20°	34.4	65	2.31	
XV110	110	180	23	22	160	16	9	15	15	8.5	2 × 20°	36.2	72	2.48	

※CRBH型（内、外圈整体高刚性型）

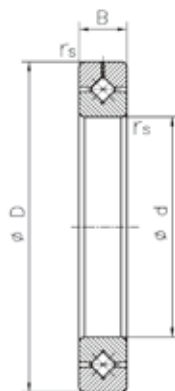
Model CRBH (High rigidity type, Both inner ring and outer ring are integrated)



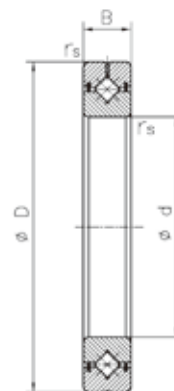
轴承型号 Designation	外形尺寸 Dimensions(mm)				额定负荷 Basic Load ratings(KN)		重量 Weight
	d	D	B	rsmin	Cr	Cor	kg
CRBH2008	20	36	8	0.3	3.23	3.1	0.04
CRBH2508	25	41	8	0.3	3.63	3.83	0.05
CRBH3010	30	55	10	0.3	7.35	8.36	0.12
CRBH3510	35	60	10	0.3	7.64	9.12	0.13
CRBH4010	40	65	10	0.3	8.33	10.6	0.15
CRBH4510	45	70	10	0.3	8.62	11.3	0.16
CRBH5013	50	80	13	0.6	16.7	20.9	0.29
CRBH6013	60	90	13	0.6	18	24.3	0.33
CRBH7013	70	100	13	0.6	19.4	27.7	0.38
CRBH8016	80	120	16	0.6	30.1	42.1	0.74
CRBH9016	90	130	16	0.6	31.4	45.3	0.81
CRBH10020	100	150	20	0.6	33.1	50.9	1.45
CRBH11020	110	160	20	0.6	34	54	1.56
CRBH12025	120	180	25	1	66.9	100	2.62
CRBH13025	130	190	25	1	69.5	107	2.82
CRBH14025	140	200	25	1	74.8	121	2.96
CRBH15025	150	210	25	1	76.8	128	3.16
CRBH20025	200	260	25	1	84.2	157	4
CRBH25025	250	310	25	1.5	69.3	150	4.97

※CRBS型（内、外圈整体超薄壁型）

Model CRBS(Ultra-thin wall type, Integrated inner/outer ring)



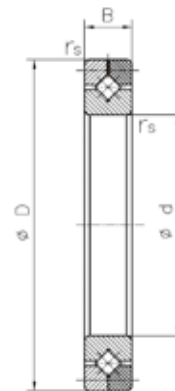
CRBS...



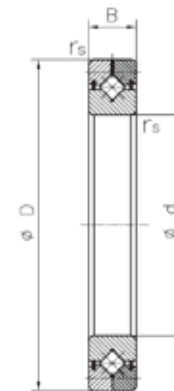
CRBS...UU

※CRBC型（外圈两半，内圈整体超薄壁型）

Model CRBC (Ultra-thin wall type, Separable outer ring, integrated inner ring)



CRBC...

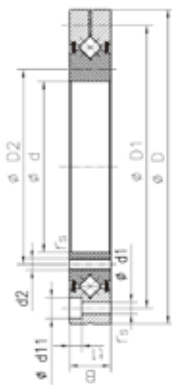


CRBC...UU

轴承型号 Designation		外形尺寸 Dimensions(mm)				额定负荷 Basic Load ratings(KN)		重量 Weight
		d	D	B	rsmin	Cr	Cor	kg
CRBS 5008	CRBC 5008	50	66	8	0.4	4.9	6.17	0.084
CRBS 6008	CRBC 6008	60	76	8	0.4	5.35	7.31	0.094
CRBS 7008	CRBC 7008	70	86	8	0.4	5.74	8.44	0.108
CRBS 8008	CRBC 8008	80	96	8	0.4	6.13	9.59	0.122
CRBS 9008	CRBC 9008	90	106	8	0.4	6.49	10.7	0.135
CRBS 1008	CRBC 1008	100	116	8	0.4	6.85	11.9	0.152
CRBS 1108	CRBC 1108	110	126	8	0.4	7.16	13	0.163
CRBS 1208	CRBC 1208	120	136	8	0.4	7.53	14.1	0.184
CRBS 1308	CRBC 1308	130	146	8	0.4	7.86	15.3	0.199
CRBS 1408	CRBC 1408	140	156	8	0.4	8.06	16.4	0.205
CRBS 1508	CRBC 1508	150	166	8	0.4	8.35	17.5	0.22
CRBS 16013	CRBC 16013	160	186	13	0.6	20.3	39.9	0.62
CRBS 17013	CRBC 17013	170	196	13	0.6	20.9	42.2	0.675
CRBS 18013	CRBC 18013	180	206	13	0.6	21.5	44.6	0.71
CRBS 19013	CRBC 19013	190	216	13	0.6	22.1	46.9	0.74
CRBS 20013	CRBC 20013	200	226	13	0.6	22.5	49.3	0.78

※RU型（内、外圈整体高刚性并具安装孔型）

Model RU(Integrated Inner/Outer Ring Type,
with high rigidity and mounting holes)



RU42 TO RU85



RU124X TO RU445X



RU124 TO RU445

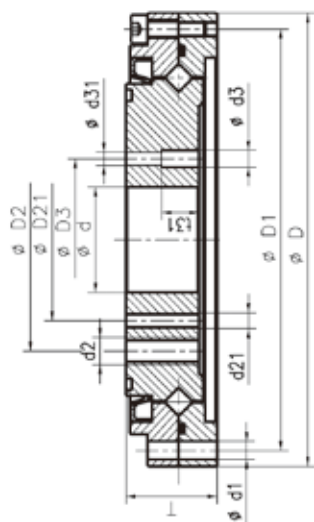


RU124G TO RU445G

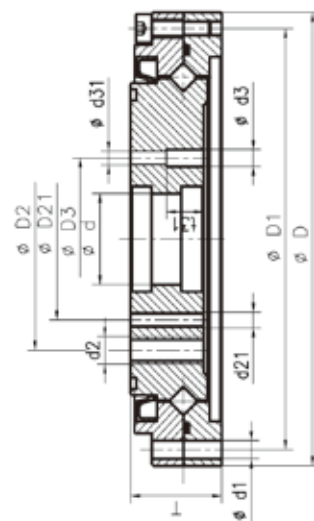
轴承型号 Designation	外形尺寸 Dimensions(mm)													额定负荷 Basic Load ratings(KN)		重量 Weight	
	d	D	B	D1	D2	n1	n2	d1	d11	t1	d2	d21	t2	rsmn	Cr	Cor	kg
RU42	20	70	12	57	28	6	6	3.4	6.5	3.3	M3	---	---	0.6	7.35	8.35	0.29
RU66	35	95	15	83	45	8	8	4.5	8	4.4	M4	---	---	0.6	17.5	22.3	0.62
RU85	55	120	15	105	65	8	8	5.5	9.5	5.4	M5	---	---	0.6	20.3	29.5	1
RU124(G)	80	165	22	148	97	10	10	5.5	9.5	5.4	5.5	9.5	5.4	1	33.1	50.9	2.6
RU124X	80	165	22	148	97	10	10	5.5	9.5	5.4	M5	---	---	1	33.1	50.9	2.6
RU148(G)	90	210	25	187	112	12	12	9	14	8.6	9	14	8.6	1.5	49.1	76.8	4.9
RU148X	90	210	25	187	112	12	12	9	14	8.6	M8	---	---	1.5	49.1	76.8	4.9
RU178(G)	115	240	28	217	139	12	12	9	14	8.6	9	14	8.6	1.5	80.3	135	6.8
RU178X	115	240	28	217	139	12	12	9	14	8.6	M8	---	---	1.5	80.3	135	6.8
RU228(G)	160	295	35	270	184	12	12	11	17.5	10.8	11	17.5	10.8	2	104	173	11.4
RU228X	160	295	35	270	184	12	12	11	17.5	10.8	M10	---	---	2	104	173	11.4
RU297(G)	210	380	40	350	240	16	16	14	20	13	14	20	13	2.5	156	281	21.3
RU297X	210	380	40	350	240	16	16	14	20	13	M12	---	---	2.5	156	281	21.3
RU445(G)	350	540	45	505	385	24	24	14	20	13	14	20	13	2.5	222	473	35.4
RU445X	350	540	45	505	385	24	24	14	20	13	M12	---	---	2.5	222	473	35.4

※CSF型【谐波减速器专用】（外圈两半，内圈整体，内外圈带安装孔型）

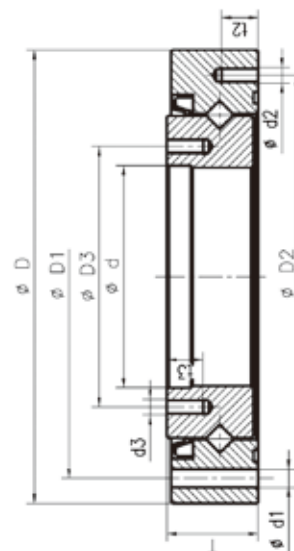
Model CSF (Separable outer ring type for outer ring rotation, both outer ring and inner ring with mounting holes)



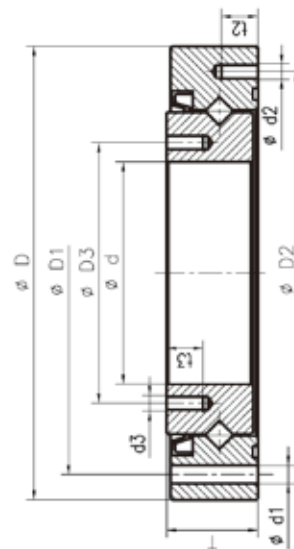
CSF14-3516 CSF17-4216
CSF20-5016 CSF25-6218
CSF32-8022



CSF40-9524 CSF50-12031
CSF65-16039



SHF14-4915A SHF17-5917A
SHF25-8321A SHF32-11024A
SHF40-13230A



SHF20-6918A SHF50-16836A

轴承型号 Designation	外形尺寸 Dimensions(mm)														额定负荷 Basic Load ratings(KN)		重量 Weight
	d	D	T	D1	D2	D21	D3	n1-d1	n2-d2	n21-d21	n3-d3	d31	t31	r3min	Cr	Cor	kg
CSF14-3516	9	55	16.5	49	23	14.5	15.5	8-φ3.5	6-M4	6-M3	2-φ3	---	---	0.3x45°	4.6	5.1	0.25
CSF17-4216	10	62	16.5	56	27	17.5	17.5	10-φ3.5	6-M5	6-M4	2-φ3	---	---	0.3x45°	5.2	6.4	0.27
CSF20-5016	14	70	16.5	64	32	24	19	12-φ3.5	8-M6	8-M5	4-φ3	4-φ2.8	7	0.3x45°	6.1	8.4	0.36
CSF25-6218	20	85	18.5	79	42	30	26	16-φ3.5	8-M8	8-M6	4-φ3	4-φ2.8	7	0.5x45°	11.2	16	0.65
CSF32-8022	26	112	22.5	104	55	40	34	16-φ4.5	8-M10	8-M8	4-φ5	4-φ4.7	10	0.5x45°	18.5	28.3	1.1
CSF40-9524	24	126	24	117	68	50	42	20-φ5	8-M10	8-M8	4-φ5	---	---	0.5x45°	18.9	30.7	1.6
CSF50-12031	32	157	31	147	84	60	50	16-φ5.5	8-M14	8-M14	4-φ5	---	---	0.5x45°	42.8	67.7	3.6
CSF65-16039	44	210	39	198	110	80	64	20-φ6.5	8-M16	8-M16	4-φ6	---	---	0.5x45°	67.7	114.9	7.8
CSF14-3516	9	55	16.5	49	23	14.5	15.5	8-φ3.5	6-M4	6-M3	2-φ3	---	---	0.3x45°	4.6	5.1	0.25
CSF17-4216	10	62	16.5	56	27	17.5	17.5	10-φ3.5	6-M5	6-M4	2-φ3	---	---	0.3x45°	5.2	6.4	0.27
CSF20-5016	14	70	16.5	64	32	24	19	12-φ3.5	8-M6	8-M5	4-φ3	4-φ2.8	7	0.3x45°	6.1	8.4	0.36
CSF25-6218	20	85	18.5	79	42	30	26	16-φ3.5	8-M8	8-M6	4-φ3	4-φ2.8	7	0.5x45°	11.2	16	0.65
CSF32-8022	26	112	22.5	104	55	40	34	16-φ4.5	8-M10	8-M8	4-φ5	4-φ4.7	10	0.5x45°	18.5	28.3	1.1
CSF40-9524	24	126	24	117	68	50	42	20-φ5	8-M10	8-M8	4-φ5	---	---	0.5x45°	18.9	30.7	1.6
CSF50-12031	32	157	31	147	84	60	50	16-φ5.5	8-M14	8-M14	4-φ5	---	---	0.5x45°	42.8	67.7	3.6
CSF65-16039	44	210	39	198	110	80	64	20-φ6.5	8-M16	8-M16	4-φ6	---	---	0.5x45°	67.7	114.9	7.8
SHF14-3516A	38	70	15.1	64	64	---	44	8-φ3.5	2-M3	---	12-M3	---	5	0.5x45°	5.4	7.1	0.28
SHF17-4216A	47	80	17	74	74	---	54	12-φ3.5	4-M3	---	20-M3	---	5	0.5x45°	10.4	14.2	0.39
SHF20-5016A	54	90	18.5	84	84	---	62	12-φ3.5	4-M3	---	(16+4)-M3	---	6	0.5x45°	16.1	22.4	0.5
SHF25-6218A	68	110	20.7	102	102	---	77	12-φ4.5	4-M3	---	(16-M4)+(4-M3)	---	6/8	0.5x45°	17.8	27.4	0.81
SHF32-8022A	88	142	24.4	132	132	---	100	12-φ5.5	4-M4	---	(16-M5)+(4-M4)	---	8	0.5x45°	25.6	42	1.7
SHF40-9524A	108	170	30	158	158	---	122	12-φ6.6	6-M4	---	(16-M6)+(4-M5)	---	8/10	0.5x45°	42.1	68.4	2.79
SHF50-12031A	135	214	36	200	200	---	154	12-φ9	6-M5	---	(16-M8)+(8-M5)	---	10/12	0.5x45°	69.8	121.6	5.19

注：后缀“A”里为带滚子孔结构 (Note: “A” type with putting roller hole)

我们一直在努力……
We are working hard……

